

REMARKS

Applicant respectfully requests reconsideration of the present application in view of the of the reasons that follow.

*Claims rejections under 35 U.S.C. § 103*

Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Otto (U.S. Patent No. 6,188,921) in view of Christopherson (U.S. Patent No. 6,339,047) and Kazuhisa (JP408106823). This rejection is respectfully traversed because i) Otto teaches away from the features of the current claims and a combination with the Christopherson and/or Kazuhisa and ii) hindsight reasoning is impermissible.

Claim 1 recites among other features, a material of said cladding metal having a breaking strain of at least 30% in a stress-strain test and the material of said cladding metal is silver having an impurity concentration of 10 ppm to 500 ppm. Otto, Christopherson and Kazuhisa, alone or in combination fail to teach, suggest or render predictable a material of said cladding metal having a breaking strain of at least 30% in a stress-strain test.

**i) Otto teaches away from the features of the current claims and a combination with the Christopherson and/or Kazuhisa.**

Otto is directed to creating a high resistivity metal cladding which has a higher resistivity than pure silver. (Otto, column 1, lines 24-29) In order to create a high resistivity cladding metal, Otto teaches, forming a matrix that comprises “a silver-rich solid solution with one or more other elements, such as gallium, tin, cadmium, zinc, indium or antimony.” (Otto, column 2, lines 56-60) Mixing silver with the one or more other elements at concentrations described or implied by Otto would create a metal sheath that is less pure than 10 ppm. Therefore, Otto teaches away from at least one of the features of claim 1. Moreover, Otto teaches away from a combination with Christopherson and Kazuhisa, since according to the Office Action of January 23, 2009, Christopherson teach, high purity silver with some impurity. (Office Action of January 23, 2009, page 3, lines 1-2). Similarly, Kazuhisa teaches a silver pipe with 99.99% purity. Therefore, the high purity silver taught in Christopherson and Kazuhisa would not create a high resistivity cladding that is the goal of Otto.

Next, the Office Action of January 23, 2009 cites Otto as teaching, “stress/strain arises in the system which may include defects into the brittle superconducting phase.” (Office Action of January 23, 2009, page 2, lines 13-15) However, instead, Otto recites, “Adding a solute having a significantly different atomic radius from that of a pure metal usually has an effect of changing the lattice parameter of the material, and thereby straining it. (Otto, column 6, lines 14-17) The “strain” that Otto is referring to is caused by the introduction of a solute with a different atomic radius. However claim 1 recites, cladding metal having a breaking strain of at least 30% in a stress-strain test.

**ii) Hindsight Reasoning is Impermissible**

Otto also teaches, “When strain is introduced into one component of a composite system, residual stresses and strains can arise.” (Otto, column 6, lines 17-20) Based on this statement the Office Action of January 23, 2009 uses impermissible hindsight reasoning to conclude that Otto teaches, “the cladding material should be selected such that it will be able to withstand the stress / strain without passing it to the superconducting phase.” (Page 2, lines 15-17)

Otto teaches away from the features of claim 1 relating to controlling of the breaking strain of the cladding metal. Instead, Otto teaches, “the attachment of a stiff mechanical support to monofilament tapes including the superconducting phase on its one or both sides (column 6, lines 23-27), can help avoid the stresses and strains caused by the introduction of the solute. Otto fails to teach selecting appropriate cladding material to control breaking strain.

Even if the cladding material is selected such that it will be able to withstand the stress/strain as asserted by the Office Action of January 23, 2009 in according to the teachings of Otto, a person skilled in the art would likely select materials having high mechanical strength. However, in a typical metal or alloy, a higher maximum stress tends to lower breaking strain (See page 12, lines 13-13 of the Original Specification). As a result, a cladding material selected for high mechanical strength would not likely have the breaking strain of at least 30% of the strain test.

Further, the silver pipe having 99.99% purity of Otto does not teach or suggest that the silver pipe has the break strain of at least 30%. The breaking strain of a material depends on many factors including the degree of purity as well as the defect density or the method of heat treatment of the material.

Accordingly, the cited references fail to teach, suggest or render predictable, "a material of said cladding metal having a breaking strain of at least 30% in a stress-strain test." Therefore, claim 1 is believed to be allowable. Because claims 2-7 depend from claim 1 they are believed to be allowable for at least the same reasons claim 1 is believed to be allowable.

*Concluding remarks*

After amending the claims as set forth above, claims 1 – 7 and 9 - 14 are pending in this application.

Applicant believes that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested. The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by the credit card payment instructions in EFS-Web being incorrect or absent, resulting in a rejected or incorrect credit card transaction, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741.

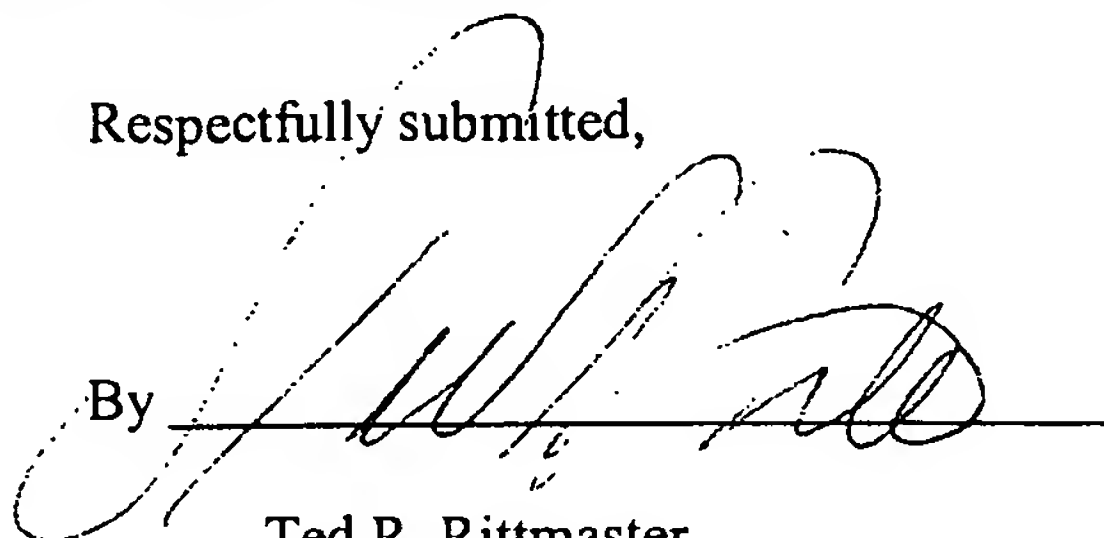
If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

Date

4/21/09

By



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